

A new game scenario – 2a.  
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Additional gaming will be valuable if we can develop a scenario that expands total benefits, and doesn't simply redistribute benefits between the environment and supplies. Can we develop such a game? I believe that we can, based upon the following considerations:

- The lack of an EWA forced us to pay for spring export cuts using b(2) water. EWA generated protection does not have any cost to users; b(2) water frequently costs users. With an EWA of adequate size, we could simultaneously reduce the export impacts of b(2), while improving project operations and increasing upstream flows.
- Of course, the creation of the EWA will require that EWA gain some rights to facilities. This could reduce exports and put us back into a zero sum game. Here I would note that water users need additional access to export water in dry years. The EWA needs additional access to export operational control in wet years. Thus, we may be able to boost EWA performance with minimal fall off in export performance. One way to do this is to note that users get most of their yield increases from new facilities during the winter storms. During the summer and fall, JPOD, the intertie, and expanded banks simply enhance flexibility. Thus, we could give the users yield by giving them winter control over new facilities, while giving the EWA flexibility by giving it summer and fall control.
- The existing methodology for b(2) will probably greatly minimize the application of b(1) operational changes and will virtually eliminate the ability of the EWA to borrow storage. This will lead to the loss of a huge number of opportunities to reduce entrainment at virtually no cost. Here is the problem. If we are allowed to protect our b(2) account by substituting b(1) actions or by borrowing with the EWA, the Projects stand to lose water – since we will reserve our b(2) for times when reoperation around a fish problem is not possible. For this reason, the Projects will inevitably resist no-cost reoperation until the b(2) account is exhausted. We gain regain the ability to implement no-cost reoperations if we can assure the Projects that they will not be harmed in the process. This means that we need to set up the rules so that is clear that no-cost reoperation will not lead to additional uncompensated export cuts in the future.
- Our current approach ignores the difficulties created in making CVP allocation decisions. If we could better define how much b(2) water might be used for export reduction each year, the CVP could make allocations with greater certainty. I have analyzed the possible use of b(2) in the export area just consisting of WQCP impacts and VAMP export reductions. The results are quite striking. The combination of the two is very consistent across years. If we limited b(2) use to just these two factors, we would not only make the allocation process more stable, but would allow no-cost reoperation to proceed by the EWA (or as b(1) actions). The reason is that the project would have less to gain by obstructing reoperation.
- We have yet to incorporate efficiency opportunities into our gaming. Doing so would allow us to simultaneously expand dry year water availability for exporters while increasing wet year operational control for the EWA.
- We have also just scratched the surface on the potential for water transfers. This was ok when purchases were only needed in dry years (since they could only benefit the projects). However, if we are again going to introduce the EWA, we need to speculate on the potential for transfers during both wet and dry years. This is particularly true if we give the EWA export rights during the summer and fall.

Based upon these considerations, consider the following scenario – 2a:

- The approach in this game is to provide the means and the incentive for the EWA and the Projects to simultaneously export more water and to cut more exports at key periods.
- Use the same b(2) accounting system as in game 1a. As a shorthand, I will call the institution that makes all environmental operations decisions the EWA. In fact, b(2) water and EWA may be controlled separately.
- The following assets are divided in the following ways:

Asset	Project Share	EWA Share
JPOD	First Priority: October – March**	First Priority: April – September**
Intertie	First Priority: October – March**	First Priority: April – September**
Expanded Banks	First Priority: October – March	First Priority: April - September
100 kaf dry year purchases	Second dry year.	First dry year.
100 kaf wet year upstream purchases		EWA controls
60 kaf demand shift	Projects have second option	EWA has first option
E/I Relaxation		EWA controls

- DOI agrees to constrain its use of b(2) in the following ways. These constraints do not require a change in the proposed accounting system, but simply represents particular choices that are possible within the accounting system.
  - DOI will only charge against b(2) no more than the following export cuts: WQCP and VAMP. All other export cuts will be on a “no harm” basis and will come from the EWA account, or from b(2) water moved into export storage under Section III of the b(2) methodology. [By limiting the possible exposure of the CVP to b(2) cuts, no-cost reoperation now becomes safe again for the CVP].
  - DOI will allow the CVP to capture 50% of water of any water released upstream under b(2). The other 50% will be controlled by USFWS and will be treated as EWA water in the game. [I.e., 50% of the releases will be classified as Section III water]. Of course, recapture is subject the availability of capacity to pump at the time of releases. The USFWS water may be stored in San Luis and will be treated as if it were EWA water (the water will be first to spill and may be carried over across years). [This is designed to give the CVP to an incentive to cooperate with no-cost reoperation in the Delta – they get up to 50% of the b(2) water saved. It also allows b(2) water to be released for upstream protection, then pumped and reused for export protection the next winter and spring.]
  - USFWS is not obligated to release b(2) water from upstream reservoirs, if storage levels are too low. In such circumstances, the b(2) water may be carried over into the next year in the upstream reservoirs selected by USFWS under Section III. However, such water will be the first to spill in the upcoming winter. The Projects retain the right to pump 50% of releases, when they are ultimately made (if capacity is available). [Given this rule, USFWS could benefit from a share of expanded Shasta, since this would create unspillable storage for unused b(2) water].
- \*\* The right to share water released under b(2) supercedes these divisions. If the CVP pumps b(2) water, then 50% of the water pumped goes to the EWA, and vice versa.
- Section III b(2) water in SLR and EWA water in SLR will be spent to fund EWA export cuts before any borrowing of Project storage in SLR will be allowed.
- The EWA may borrow SLR storage to the extent that it has acceptable collateral. The factors to be used in determining what is acceptable collateral include:
  - The likelihood of filling SLR

- The amount and “liquidity” of EWA assets. In this game, the EWA may stake the following assets as collateral:
  - Water purchase options. (The 100 kaf dry year option becomes collateral in wet years, to justify carrying a debt into a new year. If the next year is dry, the option can be called. Wet year purchases can pay off debts in the current year.)
  - Unused upstream Section III b(2) water (to the extent to which it can be moved across the Delta in time to avoid harm). EWA priority for JPOD, expanded Banks, and the intertie during the summer months means that the EWA could move as much as 210 kaf from June – September from upstream into the export areas.
  - Demand shifting (allows 60 kaf of debt to be carried over into another year without running into a low point problem).

#### Expected Results

I expect that this game will differ from game 1a in the following ways:

##### *Environmental*

- The use of b(2) to cut exports directly will decline.
- The application of no-cost export reoperation to protect fish will increase dramatically.
- The use of b(2) water, released upstream, exported as environmental water under Section III, and ultimately used to reduce exports will become significant. (and, of course, this water might be backed up and the entire cycle begun again the next fall).
- The release of b(2) water upstream will increase significantly.

The ultimate result should be greater reductions in entrainment.

##### *Water User*

- The use of b(2) to cut exports directly will decline.
- The average CVP capture of b(2) water released upstream should increase.
- The allocation process should become more certain.
- Yield increases from new infrastructure and relaxed permits should decline slightly.

The ultimate result should be a slight increase in exports.

#### Game 1b

- I would prefer to wait on the development of Game 1b until we see how game 1a performs. In general, I would use the same approach. A sharing of facilities in ways to maximize benefits to the EWA and Projects.